

REMARKS

Claims 6, 7, 20, 21, 22, 23, 26, 58, and 59 have been amended. Non-elected claims 1-5 and 63-159 have been canceled, without prejudice. Claims 6-62 remain pending in the application. Applicants reserve the right to pursue the original claims and other claims in this or other applications.

Claims 6-62 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The rejection is respectfully traversed and reconsideration is requested. Claims 6, 7, 20, 21, 22, 23, and 26 have been amended to recite the limitations of claim 1. Claims 58 and 59 have been amended to correct the misspelled “gratins.” Additionally, claims 58 and 59 have been amended to recite “at the same time” instead of “in a lump.”

Claims 6, 7, 24, 25, 46-53, and 58-59 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuwayama ‘701 in view of Tsuji ‘017, Kuwayama ‘158, and Sekine ‘579. The rejection is respectfully traversed.

Claims 6 and 7 recite “the plurality of areas of the diffraction grating is produced either by first two-beam interference exposure ... produced from first divergent light emitted from a position equivalent to a light emitting point on the light source of the optical head device and second divergent light emitted from a position equivalent to a light receiving point ... or by second two-beam interference exposure ... produced from first convergent light converging at the position equivalent to the light emitting point on the light source of the optical head device and second convergent light converging at the point equivalent to the light receiving point corresponding to each photo-detecting area.” Claim 6 further recites “utilizing the diffraction grating which is divided into the plurality of areas as an original hologram plate, and making the original hologram plate and a hologram recording material for duplication approximately in contact with one another.” Claim 7 further recites a diffraction grating “based on calculation made through a computer.” The cited references do not disclose or suggest these important limitations.

The Office Action states “[i]n figure 4a, an original holographic recording is made to form a hologram in layer 11.” Office Action at p. 6. The holographic recording of figure 4a, however, is not of “the plurality of areas of the diffraction grating,” nor is it produced by “first divergent light emitted from a position equivalent to a light emitting point ... and second divergent light emitted from a position equivalent to a receiving point ... or by second two beam interference exposure ... produced by first convergent light converging at the position equivalent to the light emitting point ... and second convergent light converging at the point equivalent to the light receiving point” as recited by claims 6 and 7. Tsuji, Kuwayama ‘158, and Sekine fail to cure these deficiencies. Kuwayama ‘158 and Sekine do not disclose a “plurality of areas of the diffraction grating,” and consequently cannot disclose how they were formed. Tsuji, even assuming its plurality of diffraction gratings read on the present application, which Applicants dispute, does not disclose how its gratings are formed, and therefore cannot cure the deficiency of Kuwayama ‘701.

The Office Action also states that it would have been obvious “to modify the process taught by Kuwayama ‘701 ... based upon the prior use of contact copying in the art to form multiple gratings simultaneously as taught by Kuwayama et al. ‘158.” Office Action at p. 7. Applicants submit that the Office Action’s reliance on Kuwayama ‘158 is misplaced. Kuwayama ‘158 describes a “master hologram plate capable of forming the intended light beam [that] can be made by using CGH ... [a]n embodiment of the hologram making optical system using the master hologram plate formed by such CGH is shown in FIG. 6.” Kuwayama ‘158 at col. 5, ll. 58-62. First, the master hologram plate and hologram sensitive material of Kuwayama ‘158 are not “approximately in contact with one another” as recited by claims 6 and 7. *Id.* at FIG. 6. Second, the hologram plate of FIG. 6 is a “master hologram plate capable of forming the intended light beam” and is not a “diffraction grating ... divided into the plurality of areas” as recited by claims 6 and 7. *Id.* at col. 5, ll. 58-9. Third, FIG. 6’s master hologram plate is not an “original hologram plate” as recited by claims , but is used because it is “capable of forming the intended light beam.” *Id.* Expressed differently, Kuwayama ‘158’s plate does not create a duplicate of itself, it is a plate designed to create a hologram plate having a different set of characteristics. Additionally, in Kuwayama ‘158 “a new hologram is made by the use of the reproduced lights from a plurality of

holograms made on the same substrate,” but does not disclose making a new hologram with a “plurality of areas of the diffraction grating” as recited by claims 6 and 7. Kuwayama ‘158 at Abstract. As such, Kuwayama ‘158 does not exhibit the “prior use of contact copying in the art to form multiple gratings simultaneously” as presented by the Office Action. Office Action at p. 7. Claims 24, 46, 48, 50, and 52 depend from claim 6, and should be allowable along with claim 6, and on their own merits. Claims 25, 47, 49, 51, and 53 depend from claim 7, and should be allowable along with claim 7, and on their own merits. As such, the rejection should be withdrawn, and the claims allowed.

Claims 6-19, 24, 25, 46-53 and 58-59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuwayama ‘701 in view of Tsuji ‘017, Kuwayama ‘158, and Sekine ‘579. The rejection is respectfully traversed. As presented previously, claims 6 and 7 are allowable over the cited references. Claims 8, 10, 12, 14, 16, 18, 24, 46, 48, 50, 52, and 58 depend from claim 6 and should be allowable along with claim 6, and on their own merits. Claims 9, 11, 13, 15, 17, 19, 25, 47, 49, 51, 53, and 59 depend from claim 7 and should be allowable along with claim 7, and on their own merits. As such, the rejection should be withdrawn, and the claims allowed.

Claims 6-25, 46-53, and 58-59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuwayama ‘701 in view of Tsuji ‘017, Kuwayama ‘158, Sekine ‘579, Dickson et. al., and/or Kuwayama et al. ‘691. The rejection is respectfully traversed. For all the reasons presented previously, claims 6 and 7 are allowable over the cited references. Dickson is cited as teaching “forming an intermediate master ... and using this to form the final articles, by contact copying, as this would allow plural copies to be made simultaneously,” while Kuwayama ‘691 is cited as teaching equating the intensity of the reference and object beams. As such, both fail to cure the deficiencies of the cited references. Claims 8, 10, 12, 14, 16, 18, 24, 46, 48, 50, 52, and 58 depend from claim 6 and should be allowable along with claim 6, and on their own merits. Claims 9, 11, 13, 15, 17, 19, 25, 47, 49, 51, 53, and 59 depend from claim 7 and should be allowable along with claim 7, and on their own merits.

Claim 20 recites limitations similar to those presented for claim 7, and is allowable for all the reasons presented for claim 7.

Claim 21 recites limitations similar to those presented for claim 7, and is allowable for all the reasons presented for claim 7. Additionally, claim 21 recites “where the duplicating exposure wavelength is different from the light source wavelength ... convergent light converging at a position, corresponding to the light emitting point of the light source of the optical head device, ... or divergent light emitted from a position ... determined according to the difference between the duplicating exposure wavelength and the light source wavelength of the optical head device.” Kuwayama ‘701 is cited as teaching “a method for forming optical heads which are corrected for the wavelength difference between recording conditions and the use in the optical head.” Office Action at p. 6. The Office Action also states “use of a phase plate (9) in aberration correction shown in figure 1.” Applicants submit that use of a “phase plate” is not “convergent light converging at a position, corresponding to the light emitting point ... or divergent light emitted from a position, corresponding to the light emitting point ... determined according to the difference between the duplicating exposure wavelength and the light source wavelength of the optical head device.”

Claim 22 recites limitations similar to those presented for claim 7, and is allowable for all the reasons presented for claim 7. Additionally, claim 22 recites “the diffraction grating is produced as a result of ... convergent light converging at a position equivalent to a point from among a plurality of light receiving points corresponding to a plurality of photodetecting areas of the photodetector of the optical head device or divergent light emitted from a position equivalent to a point from among the plurality of light receiving points.” As presented for claim 7, Kuwayama ‘701 does not disclose or suggest “convergent light converging at a position” nor “divergent light,” but it also fails to disclose or suggest positions “equivalent to a point from among a plurality of light receiving points” as recited by claim 22. Tsuji, Kuwayama ‘158 and Sekine fail to cure these deficiencies. Kuwayama ‘158 and Sekine do not disclose a “grating part divided into the plurality of areas,” and consequently cannot disclose how they were formed. Tsuji, even assuming its

plurality of diffraction gratings read on the present application, which Applicants dispute, does not disclose how its gratings are formed, and therefore cannot cure the deficiency of Kuwayama '701.

Claim 23 recites limitations similar to those presented for claims 7, 21, and 22, and is allowable for all the reasons presented for these claims. Applicants respectfully submit that the rejection should be withdrawn, and the claims allowed.

Claims 6-25, 46-53 and 58-59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuwayama '701 in view of Tsuji '017, Kuwayama '158, Sekine '579, Dickson et. al., and/or Kuwayama et al. '691, and Sutherland '442. The rejection is respectfully traversed. For all the reasons presented previously, claims 6, 7, 20, 21, 22, and 23 are allowable over the cited references. Sutherland is cited as teaching "the formation of contact copies using polymer dispersed liquid crystalline holograms" and fails to cure the deficiencies of the cited references. Claims 8, 10, 12, 14, 16, 18, 24, 46, 48, 50, 52, and 58 depend from claim 6 and should be allowable along with claim 6, and on their own merits. Claims 9, 11, 13, 15, 17, 19, 25, 47, 49, 51, 53, and 59 depend from claim 7 and should be allowable along with claim 7, and on their own merits. Applicants respectfully submit that the rejection should be withdrawn, and the claims allowed.

Claims 6-25, 46-59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuwayama '701 in view of Tsuji '017, Kuwayama '158, Sekine '579, Dickson et. al., and/or Kuwayama et al. '691, and Watanabe '637. The rejection is respectfully traversed. For all the reasons presented previously, claims 6, 7, 20, 21, 22, and 23 are allowable over the cited references. Watanabe is cited as teaching "forming an intermediate master having plural holographic patterns thereon from the initial master by performing multiple contact exposures" and fails to cure the deficiencies of the cited references. Claims 8, 10, 12, 14, 16, 18, 24, 46, 48, 50, 52, 54, 56, and 58 depend from claim 6 and should be allowable along with claim 6, and on their own merits. Claims 9, 11, 13, 15, 17, 19, 25, 47, 49, 51, 53, 55, 57, and 59 depend from claim 7 and should be allowable along with claim 7, and on their own merits. Applicants respectfully submit that the rejection should be withdrawn, and the claims allowed.

Claims 6-53, and 58-62 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuwayama '701 in view of Tsuji '017, Kuwayama '158, Sekine '579, Dickson et. al., and/or Kuwayama et al. '691, and Satoh '480. The rejection is respectfully traversed. For all the reasons presented previously, claims 6, 7, 20, 21, 22, and 23 are allowable over the cited references. Satoh is cited as teaching "an original hologram (70), which is separated from a holographic recording medium (84) by a first lens (76), an aperture which allows passage of only the zero and first order beams (80) and a second lens (82)" and fails to cure the deficiencies of the cited references. Claims 8, 10, 12, 14, 16, 18, 24, 44, 46, 48, 50, 52, 54, 56, and 58 depend from claim 6 and should be allowable along with claim 6, and on their own merits. Claims 9, 11, 13, 15, 17, 19, 25, 45, 47, 49, 51, 53, 55, 57, and 59 depend from claim 7 and should be allowable along with claim 7, and on their own merits.

Claim 26 recites forming "the plurality of areas of the diffraction grating either by first two-beam interference exposure ... produced from first divergent light emitted from a position equivalent to a light emitting point on the light source of the optical head device and second divergent light emitted from a position equivalent to a light receiving point ... or by second two-beam interference exposure ... produced from first convergent light converging at the position equivalent to the light emitting point on the light source of the optical head device and second convergent light converging at the point equivalent to the light receiving point corresponding to each photo-detecting area." As presented for claims 6 and 7, the cited references do not disclose or suggest this limitation, and Watanabe fails to cure their deficiencies. Claims 27-43 depend from claim 26 and should be allowable along with claim 26, and on their own merits. Applicants respectfully submit that the rejection should be withdrawn, and the claims allowed.

Additionally, Applicants note that claims 54-57 were only rejected under 35 U.S.C. §112. Claims 54-57 depend from claims 6 and 7, and as these claims are amended to include the limitations of claim 1, Applicants request claims 54-57 be allowed.

In view of the above Applicants respectfully submit that the application is in condition for allowance.

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Respectfully submitted,

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